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Date: 1/6/04

John M. Ling  
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re patent application of:

Applicant(s): David W. Conrad *et al.*

Examiner: Robert Siconolfi

Serial No: 09/836,976

Art Unit: 3683

Filing Date: April 18, 2001

Title: INTEGRAL MOTOR BRAKE MANUAL RELEASE MECHANISM

**MS Appeal Brief - Patents  
Commissioner for Patents  
U.S. Patent and Trademark Office  
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Alexandria, VA 22313-1450**

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**APPEAL BRIEF**

Dear Sir:

Applicants submit this brief in triplicate in connection with an appeal of the above-identified application. The Commissioner is authorized to charge \$330.00 for the fee associated with this brief to Deposit Account No. 50-1063, Order No. ALBRP211US.

**I. Real Party in Interest (37 C.F.R. § 1.192(c)(1))**

The real party in interest in the present appeal is RELIANCE ELECTRIC TECHNOLOGIES, LLC, the assignee of the present application.

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**II. Related Appeals and Interferences (37 C.F.R. § 1.192(c)(2))**

Appellants, appellants' legal representatives, and/or the assignee of the present application are unaware of any appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

**III. Status of Claims (37 C.F.R. § 1.192(c)(3))**

Claims 1-27 are pending in the application. The rejections of claims 1-27 are appealed.

**IV. Status of Amendments (37 C.F.R. § 1.192(c)(4))**

Claim 27 was amended subsequent to the final rejection of August 6, 2003.

**V. Summary of Invention (37 C.F.R. § 1.192(c)(5))**

The present invention relates generally to brake motors and in particular to systems and methods of using a manual brake release mechanism. Independent claim 1 recites "...a manual brake release, comprising: a field cup adapted to support an electromagnetic coil; an *armature plate coupled to the field cup*; a stationary plate coupled to the armature plate; a friction disk disposed between the armature plate and the stationary plate; a compression spring disposed between the field cup and the armature plate, the compression spring being operable to hold the armature plate and the friction disk against the stationary plate; and a *lever and cam assembly coupled to the armature plate and the field cup*, the lever and cam assembly being operable to separate the armature plate from the friction disk." Independent claims 11, 21, and 27 recite similar features to those of claim 1. The claimed invention *directly* couples a rotary cam to a lever (See Figure 5, illustrating a rotary cam mounted on a lever), which then *directly acts upon the armature plate and field cup to which it is coupled*. Turning the camshaft *directly* results in *tilting movement of the cam and the top portion of the lever* toward the friction disk, which in turn forces the bottom portion of the lever to move in an opposite direction, away from the friction disk. The *cam itself is mounted on the lever* (see, e.g., Figure 5), so that when the handle is turned, *the entire lever/cam assembly is tilted* (see, e.g., Figures 6 and 7). Because the bottom portion of the lever is directly attached to the armature plate/field cup assembly, the armature plate and field cup are also pulled away from the friction disk, permitting free rotation of the

friction disk and the axis to which it is attached. This aspect of the present invention is advantageous in that it requires fewer moving parts than the McCarthy system while providing a high mechanical advantage in a compact space.

**VI. Statement of the Issues (37 C.F.R. § 1.192(c)(6))**

Whether claims 1-27 are patentable under 35 U.S.C. §103(a) over Marshall *et al.* (U.S. 5,685,398) in view of McCarthy (U.S. 4,181,201).

**VII. Grouping of Claims (37 C.F.R. § 1.192(c)(7))**

For the purposes of this appeal only, the claims are grouped as follows:

Claims 1-27 stand or fall together.

**VIII. Argument (37 C.F.R. § 1.192(c)(8))**

**Rejection of claims 1-27 Under 35 U.S.C. §103(a)**

***A. The combination of Marshall et al. and McCarthy fails to teach or suggest, either expressly or inherently, each and every element of the claimed invention as set forth in the subject claims. Specifically, the prior art fails to teach or suggest a cam and lever assembly that, when manipulated, directly effectuates movement of the cam and lever assembly away from a stationary surface, which in turn effects the release of a brake.***

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) ***must teach or suggest all the claim limitations***. See MPEP §706.02(j). The ***teaching or suggestion to make the claimed combination*** and the reasonable expectation of success ***must both be found in the prior art and not based on applicant's disclosure***. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Marshall *et al.* describes an *externally mounted lever*, which, when moved in either a

forward *or* rearward direction, *disengages* an armature from a friction disc. Marshall *et al.* does not teach the lever/cam assembly of the present invention. The Examiner relies on McCarthy to introduce the cam portion of a lever/cam assembly.

McCarthy fails to overcome the deficiencies of Marshall *et al.* with respect to the subject claims. McCarthy is directed toward providing mechanical advantage in a compact space. *See, e.g.* column 5, lines 9-15 and column 6, lines 21-31, discussing the advantages of smaller and fewer parts associated with achieving mechanical advantage. The McCarthy structure involves a cam engaging latch arm 88 coupled to a handle 92. To manually release the brake, the handle must be turned 90°, such that the latch arm 88 engages a U-shaped cam portion 64 and pivots the cam portion 64 and a supporting lever 24 to release a brake shoe 46 from a frictional braking engagement with a brake disc 16. *The cam engaging latch arm 88 and handle 92 assembly is a separate structure from the cam portion 64 and the supporting lever 24*, as shown in Fig. 1 of McCarthy. Neither the cam engaging latch arm 88, the cam portion 64, nor the supporting lever 24 is coupled to an armature plate or a field cup, as set forth in independent claims 1, 11, and 21. Combining the cam-engaging latch arm 88 and handle 92 assembly to the lever of Marshall *et al.* would merely result in a cam-engaging latch arm that pushes a lever, and not in a *cam/lever assembly wherein the cam pushes itself and the lever away from a fixed structure when turned*. In fact, neither reference, alone or in combination, discloses such a fixed structure (*e.g.* the field cup 240) positioned to provide a surface against which the cam-engaging latch arm 88 could push to effectuate movement of itself and a lever, let alone a *cam mounted directly on a lever*.

***B. The Examiner is impermissibly using the claimed invention as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention.***

The Federal Circuit has consistently held that

***...‘virtually all [inventions] are combinations of old elements.’*** Therefore an examiner may often find every element of a claimed invention in the prior art. ***If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue.*** Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an

examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. ***Such an approach would be ‘an illogical and inappropriate process by which to determine patentability.’***

*In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1998) (citations omitted).

“Under 35 U.S.C. 103 where the examiner has relied on the teachings of several references, the test is whether or not the references viewed individually and collectively would have suggested the claimed invention to the person possessing ordinary skill in the art. It is to be noted, however, that citing references which merely indicated that isolated elements and/or features recited in the claims are known is not a sufficient basis for concluding that the combination of claimed elements would have been obvious. That is to say, there should be something in the prior art or a convincing line of reasoning in the answer suggesting the desirability of combining the references in such a manner as to arrive at the claimed invention... [I]t would not have been obvious to modify [the prior art] ... without using [the patent application’s] claims as a guide. It is to be noted that simplicity and hindsight are not proper criteria for resolving the issue of obviousness.” *Ex parte Hiyamizu*, 10 USPQ2d 1393 (BPAI 1988).

The Examiner contends, in the 2<sup>nd</sup> Advisory Action Dated November 25, 2003, that applicants’ representative’s arguments are predicated on the bodily incorporation of McCarthy into Marshall *et al.* The Examiner asserts that rotating the cam-engaging latch-arm 88 will move the lever 24 of McCarthy, and that the cam 60 of McCarthy is not required to achieve this function. Thus, the Examiner is attempting to cite McCarthy to indicate that isolated elements and/or features recited in the claims are known, which, as stated above, *is not sufficient basis for concluding that the combination of claimed elements would have been obvious.*

Moreover, and contrary to the Examiner’s assertion, the cam 60 is in fact required to effectuate movement of the lever 24. As is readily apparent from Figure 2 of McCarthy, *turning the manual latching device 84 causes the cam-engaging latch arm 88 to engage u-shaped portion 64 the cam 60.* The u-shaped portion 64 is pushed to the right, according to the figure, which pushes the lever in the same direction. Furthermore, to effect release of the brake, pushing the u-shaped portion 64 of the cam 60 to the right causes the pivot section 62 of the cam 60 to move to the left. This, in turn, pulls the actuating lever arm 66 to the left, which causes the

solenoid armature 82 be lowered into the solenoid 15 to release the brake. *See, e.g.,* Figure 2. *See also* Column 4, line 68 – Column 5, line 3: “*The manual latching device 84, when adjusted in its latching position, moves the solenoid armature 82 downward only about 3/16<sup>th</sup> of an inch, which is sufficient to release the brake.*” Thus, the second cam 60 is indeed required to effectuate manual release of the brake.

***C. There is no motivation to combine the cited references in the manner suggested by the Examiner.***

The Federal Circuit requires the Examiner to show a motivation to combine the references to create the case of obviousness. That is, **the Examiner must show reasons that the skilled artisan**, confronted with same problems as the inventor and with no knowledge of the claimed invention, **would select the elements from the cited prior art references for combination in the manner claimed.** *See In re Rouffet, supra* at 1357.

The prior art items themselves must suggest the desirability and thus the obviousness of making the combination *without the slightest recourse to the teachings of the patent or application*. Without such independent suggestion, the prior art is to be considered merely to be inviting unguided and speculative experimentation which is not the standard with which obviousness is determined. *Amgen, Inc. v. Chugai Pharmaceutical Co. Ltd.*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991); *In re Laskowski*, 871 F.2d 115, 117, 10 USPQ2d 1397, 1398 (Fed. Cir. 1989); *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1532 (Fed. Cir. 1988); *Hodosh v. Block Drug*, 786 F.2d at 1143 n. 5., 229 USPQ at 187 n. 4.; *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1985).

In general, the rationale proffered to combine such teachings is to achieve benefits identified in applicants' specification, to overcome problems associated with conventional methods, *etc.* Applicants' respectfully submit that this is an unacceptable and improper basis for a rejection under 35 U.S.C. ' 103. In essence, the Examiner is basing the rejection on the assertion that it would have been obvious to do something not suggested in the art because so doing would provide advantages stated in applicants' specification. This sort of rationale has been condemned by the CAFC; *see, for example, Panduit Corp. v. Dennison Manufacturing Co.*,

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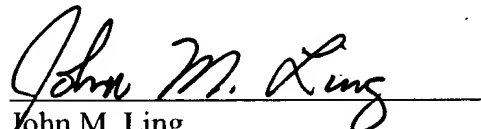
1 USPQ2d 1593 (Fed. Cir. 1987).

Although Marshall *et al.* teaches the use of a manual brake release mechanism to separate an armature plate with a friction disk, Marshall *et al.* fails to teach or suggest the use of a *lever and cam assembly*, as discussed above. Furthermore, Marshall *et al.* fails to suggest any desirability or provide any motivation to be combined with the brake shoe release mechanism of McCarthy. Likewise, any suggestion to modify the manual brake release mechanism is absent from Marshall *et al.*

#### **IX. Conclusion**

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejection of claims 1-27 be reversed.

Respectfully submitted,  
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**X. Appendix of Claims (37 C.F.R. § 1.192(c)(9))**

1. (Original) An electronic brake system for an electronic motor, the electronic brake system having a manual brake release, comprising:

a field cup adapted to support an electromagnetic coil;

an armature plate coupled to the field cup;

a stationary plate coupled to the armature plate;

a friction disk disposed between the armature plate and the stationary plate;

a compression spring disposed between the field cup and the armature plate, the compression spring being operable to hold the armature plate and the friction disk against the stationary plate; and

a lever and cam assembly coupled to the armature plate and the field cup, the lever and cam assembly being operable to separate the armature plate from the friction disk.

2. (Original) The system of claim 1, the lever and cam assembly comprising a lever portion and a cam portion, the lever portion having a first and a second generally L-shaped end portion coupled to one another by a generally arcuate central portion, the lever portion being adapted to partially surround the field cup and coupled to the field cup at the first and second end portions, the cam portion being coupled to the lever portion at a central region of the arcuate central portion and being adapted to make contact with a surface of the field cup.

3. (Original) The system of claim 2, the lever portion being connected at a first and a second end to the field cup at a first and a second pivot point, the first and second pivot point being disposed approximately 180-degrees apart from each other, the lever portion being pivotable about the first and second pivot points in response to rotation of the cam portion resulting in tilting of the lever portion to pull the armature plate away from the friction disk and disengage the brake.

4. (Original) The system of claim 3, the lever portion of the lever and cam assembly tilting at an angle in the range of about 1 to 10 degrees.



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5. (Original) The system of claim 4, the lever portion tilting at an angle of about 4 degrees.
6. (Original) The system of claim 3, further comprising a handle coupled to the cam portion, the handle being operable to rotate the cam portion.
7. (Original) The system of claim 6, the cam portion being adapted to allow the cam portion and handle to rotate between a first position and a second position.
8. (Original) The system of claim 4, the cam portion including a first position and a second position, the first position being operable to hold the lever and cam assembly in a disengaged position and the second position of the cam portion being operable to hold the lever and cam assembly in an engaged position.
9. (Original) The system of claim 8, the cam portion having a side with an angle incorporated therein, the angle being operable to hold the lever and cam assembly in the engaged position, the angle being in the range of about 1 to 8-degrees.
10. (Original) The system of claim 9, the angle being about 3 degrees.
11. (Original) An electronic motor system having an electronic brake with a manual brake release, comprising:
- a motor portion surrounded by a frame;
  - a field cup housing an electromagnetic coil and at least one compression spring, the field cup being coupled to the frame located at an opposite drive end of the motor;
  - an armature plate coupled to the field cup;
  - a stationary plate coupled to the armature plate;
  - a friction disk disposed between the armature plate and the stationary plate, the compression spring being operable to hold the armature plate and the friction disk together; and

a manual brake release coupled to a periphery of the field cup, the manual brake release being comprised of a lever and cam assembly coupled to the armature plate and the field cup, the lever and cam assembly being operable to separate the armature plate from the friction disk.

12. (Original) The system of claim 11, the lever and cam assembly comprising a lever portion and a cam portion, the lever portion having a first and a second generally L-shaped end portion coupled to one another by a generally arcuate central portion, the lever portion being adapted to partially surround the field cup and coupled to the field cup at the first and second end portions, the cam portion being coupled to the lever portion at a central region of the arcuate central portion and being adapted to make contact with a surface of the field cup.

13. (Original) The system of claim 12, the lever portion being connected at a first and a second end to the field cup at a first and a second pivot point, the first and second pivot point being disposed approximately 180-degrees apart from each other, the lever portion being pivotable about the first and second pivot points in response to rotation of the cam portion resulting in tilting of the lever portion to pull the armature plate away from the friction disk and disengage the brake.

14. (Original) The system of claim 13, the lever portion of the lever and cam assembly tilting at an angle in the range of about 1 to 10 degrees.

15. (Original) The system of claim 14, the lever portion tilting at an angle of about 4 degrees.

16. (Original) The system of claim 13, further comprising a handle coupled to the cam portion, the handle being operable to rotate the cam portion.

17. (Original) The system of claim 16, the cam portion being adapted to allow the cam portion and handle to rotate between a first position and a second position.

18. (Original) The system of claim 14, the cam portion including a first position and a second position, the first position being operable to hold the lever and cam assembly in a disengaged position and the second position of the cam portion being operable to hold the lever and cam assembly in an engaged position.

19. (Original) The system of claim 18, the cam portion having a side with an angle incorporated therein, the angle being operable to hold the lever and cam assembly in the engaged position, the angle being in the range of about 1 to 8 degrees.

20. (Original) The system of claim 19, the angle being about 3 degrees.

21. (Original) A method of fabricating an electronic brake system for an electronic motor, comprising:

providing a field cup for supporting an electromagnetic coil;

coupling an armature plate, friction disk, and stationary plate assembly to the field cup;

providing at least one compression spring disposed between the field cup and armature plate, the at least one compression spring being operable to push the armature plate against the friction disk; and

connecting a lever and cam assembly to the field cup and the armature plate, the lever and cam assembly being operable to pull the armature plate away from the friction disk.

22. (Original) The method of claim 21, the lever and cam assembly comprising a lever portion and a cam portion, the lever portion having a first and a second generally L-shaped end portion coupled to one another by a generally arcuate central portion, the lever portion being adapted to partially surround the field cup.

23. (Original) The method of claim 21, the step of connecting the lever and cam assembly to the field cup comprising coupling the lever to the field cup at the first and second end portions and coupling the cam portion to the lever portion at a central region of the arcuate central portion such that the cam portion makes contact with a surface of the field cup.

24. (Original) The method of claim 23, the first and second pivot point being disposed approximately 180-degrees apart from each other such that the lever portion is pivotable about the first and second pivot points in response to rotation of the cam portion resulting in tilting of the lever portion to pull the armature plate away from the friction disk and disengage the brake.

25. (Original) The method of claim 24, further comprising coupling a handle to the cam portion, the handle being operable to rotate the cam portion between a first position and a second position.

26. (Original) The method of claim 24, the cam portion including a first position and a second position, the first position being operable to hold the lever and cam assembly in a disengaged position and the second position of the cam portion being operable to hold the lever and cam assembly in an engaged position.

27. (Previously Presented) A manual brake release system, comprising:  
lever means for pulling an armature plate away from a friction disk;  
cam means for providing a tilting action in the means for pulling in response to rotation of the cam means; and  
means for rotating the cam means.